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Effects of strategies to tackle racism experienced by healthcare professionals: a systematic review

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ABSTRACT

Objectives The objective of this study is to evaluate the effect of equality, diversity and inclusion (EDI) training interventions on race inequalities experienced by healthcare professionals.

Design Systematic review.

Data sources Cochrane, MEDLINE and Embase databases were searched from database inception to February 2024.

Eligibility criteria Randomised trials, observational studies and mixed-methods studies published in English were included. Studies that reported the effects of EDI training interventions targeting healthcare professionals were included.

Date extraction and synthesis A narrative synthesis approach was used to evaluate the impact of EDI interventions on healthcare professionals.

Results 17 studies were included. EDI interventions were delivered using several methods including didactic, group discussion, game-based learning or a combination of methods. Out of nine studies, eight (88.9%) interventions resulted in an improvement in knowledge and awareness. Five studies reviewed the effect on cultural competence and four (80.0%) improved cultural competence. Out of eight studies, six (75.0%) resulted in willingness to change and skills gained to promote behavioural change. Most of the improvements seen were with theory-based, multimethod curriculum in comparison to a non-theory-based didactic approach. However, there was insufficient evidence to suggest that these interventions impact the racism that healthcare professionals from an ethnic/racial minoritised group experience.

Conclusions EDI interventions may improve healthcare workers' knowledge and awareness of racial inequalities and cultural competence. Although a willingness to change may occur and behavioural change is promoted, there is insufficient evidence from this review to suggest that this reduces the experience of racism.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ To our knowledge, this is the first systematic review that comprehensively assesses the impact of equality, diversity and inclusion interventions based on training design and delivery.
⇒ The included studies demonstrated that there was an unclear/high risk of bias, meaning their findings may not truly be due to the interventions provided.
⇒ The countries included in this review were limited and could not be generalisable to all settings, including the National Health Service.
⇒ Meta-analyses could not be undertaken due to the heterogeneity of interventions, settings, study design and outcome measures.

INTRODUCTION

Racism in the workplace has negative consequences on healthcare practitioners and patients.[1] A motivated, inclusive and valued workforce can help deliver high-quality patient care, increase patient satisfaction and improve patient safety.[2] However, despite increasing diversity in the healthcare workforce, where individuals with multiple characteristics are represented, where individuals with multiple characteristics are represented, inclusivity,[3] that is, creating an environment where individuals feel welcomed and valued, is low.[4] Racial inequality within organisations manifests as reduced likelihood of recruitment, professional development or promotions in minority groups black, Asian and other ethnic minority staff are less likely to progress to senior leadership roles and more likely to experience discrimination, bullying, harassment and victimisation than their white counterparts in the workplace.[2]

Globally, healthcare staff have described incidents of racism from other staff members.[5] For example, in the USA, doctors from an ethnic minority background experienced racism from colleagues and this was significantly increased if English was their second language, which impacted their mental health and well-being.[6] Similar findings have been described by migrant nurses in Finland, where in comparison to non-migrants, higher rates of discrimination in the workplace were experienced.[7] Moreover, nurses in Canada described that these experiences contributed to physical health concerns including sudden diagnosis of cardiovascular disease and mental health concerns such as anxiety

and depression.[8] In the UK, healthcare professionals from an ethnic minority background are more likely to face disciplinary processes within the workplace than their white colleagues.[9] Workers in UK's National Health Service (NHS) who experience racism in the workplace encounter reduced prospects for career advancement and training, alongside adverse impacts on their self-esteem, empowerment and overall well-being.[10 11]Additionally, racism impedes equitable access to safe working conditions and competitive wages. Pay gaps are also evident in the NHS.[12] With a quarter of the NHS workforce being from ethnic minority backgrounds in the UK, and similarly in other countries like the US, equality needs urgent attention.[10 13]

Health systems have implemented various interventions to promote equality, diversity and inclusion (EDI) within the workforce, such as the UK Practitioner Performance Advice-Lived Experience Action Plan.[14] The impact of these EDI interventions has not been systematically evaluated.

We undertook a systematic review to assess the effects of EDI interventions on race inequalities experienced by healthcare professionals within healthcare organisations to inform practice and improve existing mandatory training.

METHODS

Search strategy and eligibility criteria

The findings of this systematic review were reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (online supplemental table 1).[15] Studies that reported the effect of EDI interventions on race inequalities between healthcare professionals within healthcare organisations were included. To ensure a comprehensive search, we searched the Cochrane Library, MEDLINE and Embase database from database inception (Cochrane Library-1996, MEDLINE; 1946, EMBASE; 1947) to February 2024 using the terms "ethnicity, diversity and inclusion training", "inclusive leadership", "anti-racism training", "cultural competency training", "discrimination", "healthcare provider", "effect, "outcome", "evaluation" including medical subject headings (meSH) terms. We also manually searched the references from identified studies to identify other relevant studies. A full search strategy can be found in online supplemental data 2. This systematic review was not eligible for International Prospective Register of Systematic Reviews (PROSPERO) registration as patient outcomes were not evaluated. Therefore, the protocol has not been published.[16] This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Inclusion and exclusion criteria

We included randomised trials, observational studies and mixed-methods studies. Studies were included if they described the impact of a single EDI intervention on healthcare professionals' post-intervention. Other outcomes of interest included the following:

- Behavioural and organisational impact.
- Cost of implementing the initiative.
- Staff satisfaction with initiative, including outcomes such as knowledge, attitudes, behaviours, skills, self-awareness and job satisfaction.
- Extent to which training is embedded.

Studies that included healthcare students or those reporting solely patient outcomes were excluded. Case reports, conference abstracts/proceedings and review articles were excluded. Non-English literature was excluded if a proper and reliable translation could not be sought. Two researchers (NO and OS) independently screened the titles and abstracts of all retrieved studies to obtain studies for full-text assessment. Any disagreements surrounding eligibility for full-text assessment were resolved by the through a consensus-based discussion meeting between NO and OS, following a repeat review of the eligibility criteria. The senior authors resolved any further disagreements. Full-text articles which met the inclusion criteria were then assessed by the two authors.

Risk of bias and quality of included studies

Two authors (NO and OS) independently used the relevant critical appraisal tool from the Joanna Briggs Institute to evaluate the methodological quality of selected studies. This included the tool for randomised controlled, quasi-experimental and qualitative studies.[17–19] For studies using a mixed-methods approach, the relevant tool for the main study type was used. Any disagreements surrounding study quality were resolved through consensus. To assess the overall quality of the evidence, two reviewers independently used the criteria recommended by the Grading of Recommendations Assessment, Development and Evaluation working group (GRADE). This grades the quality of evidence (low, moderate and high) based on the methodological limitations of the studies, risk of bias, publication bias, inconsistency, indirectness and imprecision four categories for the quality of a body of evidence.[20] A narrative summary of the effect was provided using the recommendations by Murad *et al*[21] for the application of GRADE to a narrative synthesis. Any disagreements surrounding overall study quality were resolved by the senior reviewers or through consensus-based discussion.

Data extraction

Data were collected from eligible studies, using a standardised electronic data extraction form. Data extracted included study characteristics (first author, publication year, study design, participants, sample size, intervention, intervention design and delivery, and curriculum content), outcome measures and outcome definition. Data were tabulated to allow examination and comparison between studies. Two researchers (NO and OS) independently performed the data extraction. Any disagreements were resolved through consensus-based discussion.

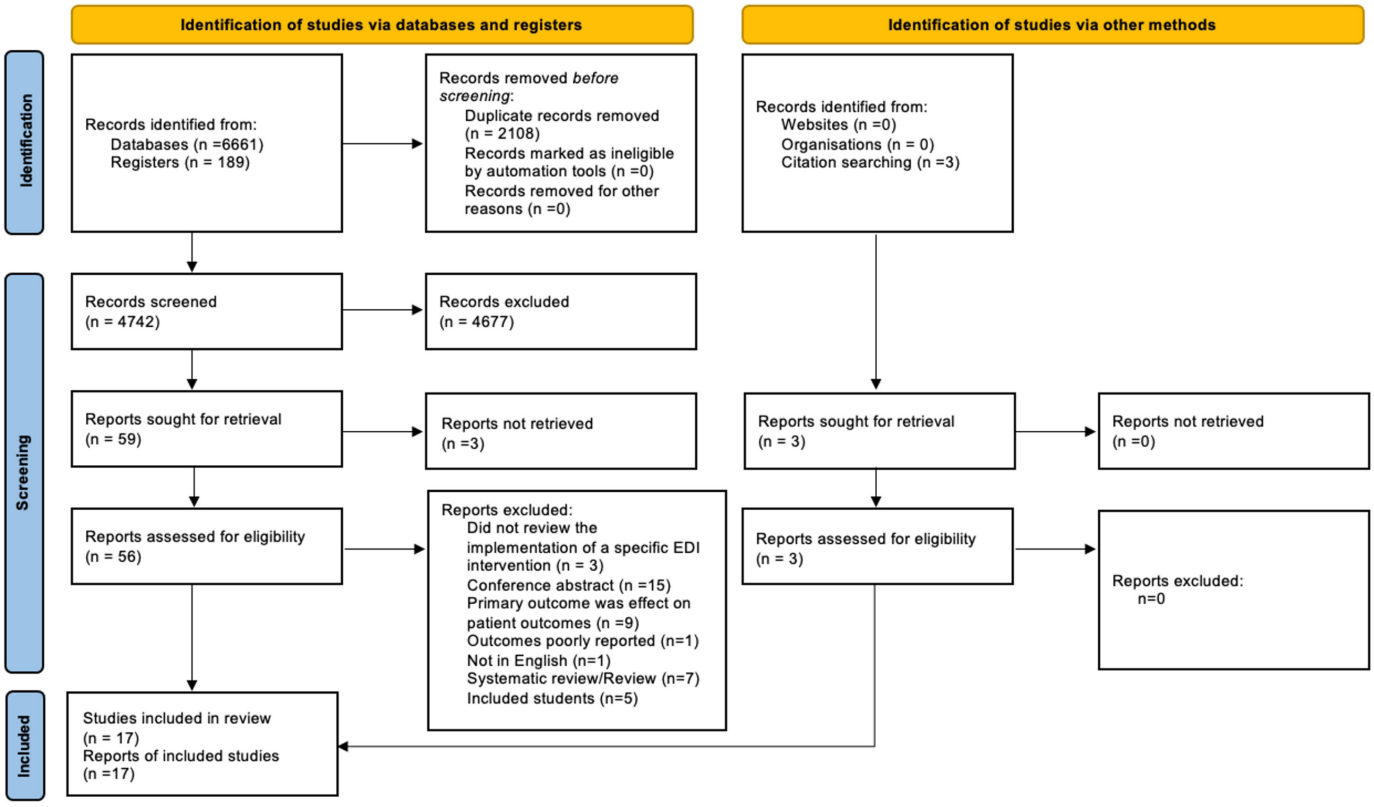

Figure 1 PRISMA flow diagram. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Data synthesis

Due to the heterogeneity of the outcomes presented in each study, a narrative synthesis of outcomes was performed. For quantitative data, a preliminary synthesis was developed to identify quantitative data; a preliminary synthesis was developed to identify the main themes and subthemes in the included studies. This was done through tabulating study findings to aid analysis, then grouping and clustering the data based on the three levels of EDI, including awareness around diversity, cultural competence and racial injustice,[22] to construct a common measure. Moderator variables based on EDI training design were then used to analyse their effect on the outcome variable. For qualitative data, a content analysis was used by categorising text to identify common themes and differences between the studies.[23]

RESULTS

Study selection

Overall, 6853 articles were initially identified. After the removal of duplicates, and screening of study titles and abstracts, 61 were selected for full-text review. 17 eligible studies were included in the narrative review (figure 1). A full list of excluded studies and reasons for exclusion is given in online supplemental table 3.

Study characteristics

Online supplemental table 4 describes the characteristics of the included studies. This review included 1188 healthcare professionals who underwent EDI interventions. Their roles included doctors, nurses, paramedics, pharmacists, occupational therapists, psychologists, social workers, healthcare assistants and administrative roles. 11 studies described the ethnic background of study participants.[24–29] Overall, 199 (35.5%) participants were from an ethnic minority background. Studies were published between 2006 and 2024 and were performed in the Netherlands,[30] Germany,[31] Taiwan,[28] the USA[24 26 27 29 32–39] and Canada.[25 40] No studies were performed in the UK. One randomised controlled trial (RCT)[28] was identified in the literature, seven were quasi-experimental,[24 26 31 33 34 36 37] three were qualitative[27 29 40] and six were mixed-methods (quasi-experimental and qualitative).[25 30 32 35 38 39]

Risk of bias and quality appraisal of included studies

Figure 2 shows the risk of bias for the sixteen studies using a quasi-experimental/mixed-methods[24–26 30–39] or qualitative design.[27 29 40] There was evidence of unclear/high risk of bias in three out of nine domains for the quasi-experimental/mixed-methods studies. This was most commonly due to the lack of a control group in 12 (92.3%) studies.[24–26 30–37 39] In the qualitative studies, there was an unclear/high risk of bias in 4 out of 10 domains. This was most commonly due to a lack of statement locating the researcher culturally/theoretically and the influence of the researcher on the research not being addressed in 3 (100.0%) studies.[27 29 40] With the RCT by Lin and Hsu,[28] there was an unclear/high risk of bias in

Figure 2 Risk of Bias for the studies using a quasi-experimental design and qualitative using the Joanna Briggs Institute Tool.

3 out of 13 domains including, lack of participant and researcher blinded to treatment assignment and the lack of clarity surrounding participants' analysis in their randomised groups.

The overall quality of evidence for all the included studies was very low, according to the GRADE criteria.[20] The level of evidence was downgraded due to methodological limitations, imprecision and inconsistency of results across studies (table 1).

Intervention objectives

All studies[24–40] had clear outcomes described in their methodology. They aimed to improve knowledge, promote awareness, change attitudes and behaviour and provide skills to reduce the experience of racial and cultural bias when engaging with healthcare worker peers. Tillman *et al*[32] describe the need for this to strengthen professional relationships between staff in an emerging and existing diverse workforce.

Table 1 Overall quality of the evidence

GRADE domain	Judgement	Concerns about certainty domains
Methodological limitations of the studies	For the 13 quasi-experimental/mixed-methods studies,[24–26 30–39] there was evidence of an unclear/high risk of bias in 3 out of 9 domains. In the 3 qualitative studies,[27 29 40] there was an unclear/high risk of bias in 4 out of 10 domains. In the 1 RCT,[28] there was an unclear/high risk of bias in 3 out of 13 domains. Therefore, we judged the trials to have serious methodological limitations.	Very serious
Indirectness	The population of interest and interventions provided direct evidence to the review question	Not serious
Imprecision	The total number of healthcare professionals in all the studies was 1188. However, only one study[24] reported effect size and CI values, so conclusions regarding imprecision were unclear. Therefore, we judged this evidence to have serious imprecision.	Serious
Inconsistency	Different outcome measures were used in all studies and only four[6 19 20 26] used validated scored. Of the studies reporting quantitative results, 10 studies[24–26 30 31 33 34 37–39] found statistically significant improvements in outcomes . However, this was not seen in all outcome subsections. We judged this evidence to have serious inconsistency.	Serious
Publication bias	There was no evidence of publication bias as studies reported negative and positive findings. In addition, a comprehensive search was performed and there is no industry influence on the included studies.	Undetected

GRADE, Grading of Recommendations Assessment, Development and Evaluation; RCT, randomised controlled trial.

Training design and delivery

Theory-based interventions were used in five studies.[30 34 36 37 39] Theories used to develop the interventions included the Deming Cycle (Plan-Do-Study-Act, PDSA),[30] Kern's six-step approach,[29 34 36 39] Peggy McIntosh work on the 'Invisible Knapsack',[41] Campinha-Bacote's model of cultural competence[42] Paulo Freire's pedagogy of critical consciousness,[29] self-determination theory,[39] critical race theory,[37] transformative learning[37] and minority stress theory.[37] Curriculum content was developed by healthcare professionals with guidance from the literature,[25–27 31 33–35 37 39] study participant feedback[36 38] and collaboration with experts, national social development groups and other relevant stakeholders.[24 28 30 32]

Intervention duration ranged between 1 hour and 6 hours.[24–26 28 30–35 37–40] The number of sessions provided ranged between 1 and 15.[24–40] Most interventions were delivered by relevant groups, including those with an ethnic minority background,[32 33] experienced educators,[24 26–28 30 31 33 36–38] experienced community members[34] and individuals with practical experience.[32] Incentives to enhance participation were employed in three studies, including lunches,[33 34] certificates[25] and monetary prizes between US$10 and US$100.[25 34] It was not evaluated if this had an impact on staff engagement. However, participants in the study by Celik *et al*[30] highlighted that barriers to these interventions include time constraints due to workload, bureaucracy, staff shortages and lack of support. Participants in the study by Shahram *et al*[29] described that despite feeling empowered to effect change after the intervention, lack of resources was a significant barrier.

Training was delivered individually,[30 33] in small groups,[25 26 30 32 35 40] and large groups.[26 27 30 33 34] A didactic teaching format was used in five (29.4%) studies.[24 29 33 34 36] A multimethod approach for intervention delivery was used in 12 (70.6%) studies, this included didactic lectures, simulation, group discussion, reflection, games and creation of presentations by the participants.[25–28 30–32 35 37–40] Teaching was provided in the classroom[25 27 34 35] and/or virtually.[24 33 34 36 40] Steed[35] described using video documentaries to stimulate discussion surrounding healthcare disparities. Interactive methods were used by Holm *et al*,[27] where participants were given small bags and were instructed to collect a penny at each station where the statement provided related to them. For example, "I can speak in a roomful of hospital leaders and feel that I am heard". Lange *et al*[38] also used interactive activities to engage participants, such as sharing culturally specific food and games.

Curriculum

All of the interventions had two major themes within their curriculum. First, raising awareness of racial inequality, diversity, healthcare disparities and cultural differences. There was also an emphasis on self-reflection from the individual participants' own cultural and racial identity. Second, application of this knowledge to a work environment. Two studies applied this within their own organisation with the review and creation of new policy documents, protocols and guidelines.[30 33] For example, Santoro *et al*[33] created a document for participants to place on their workstations as a reminder to be culturally humble when interacting with other members of

staff. Following EDI training in the study by Celik *et al*,[30] participants used their new knowledge to evaluate policy documents, protocols and guidelines used in their practice from a diversity perspective.

Outcome evaluation methods

Four studies[28 34 35 38] used validated tools as outcome measures in their studies, including the Anti-Racism Behavioural Inventory (ARBI),[43] the Race Attitude Implicit Association Test (RAAIT),[44] the Racial Argument Scale (RAS),[45] the Cultural Efficacy Scale (CSES)[46] and the Nursing Cultural Competency Scale (NCCS).[47] Brathwaite and Majumdar[25] used their study to design the Cultural Knowledge Scale, which was a 5-point Likert-type scale ranging from strongly agree to strongly disagree with 24 items. The scale was based on validated tools including the Inventory for Assessing the Process of Cultural Competence among Healthcare Professional Revised (IAPCC-R)[42] and the CSES.[46] 11 studies used non-validated outcome measures including knowledge, awareness, confidence, self-efficacy, skill acquisition, willingness to take action, behavioural change and experience of racism.[24 26 30 30–33 36 37 39 40]

13 (76.5%) studies[24–26 28 30 31 33–39] collected data pre-intervention and post-intervention to investigate intervention effectiveness. However, only four of these studies reviewed effectiveness at 3 months,[25 26] 6 months[33] and 2 years post-intervention.[36] One study[32] only reviewed post-intervention feedback. Qualitative data were obtained through semistructured interviews, group discussion, debrief, intervention feedback, journal entry and review of open-ended questions within the surveys.[25 27 29 30 32 33 35 38–40] Three studies reported qualitative data alone.[27 29 40]

Findings

Figure 3 illustrates the key themes identified from the literature in keeping with the three levels of EDI interventions, including improved knowledge and awareness, cultural competence and racial justice, to reduce workplace bias.

Knowledge and awareness around diversity

EDI intervention effectiveness on knowledge and awareness was reported in 9 (69.2%) out of 13 studies.[24–26 28 30 31 33 34 38] This outcome improved following EDI interventions in 8 (88.9%) of studies. With a didactic teaching method, this outcome was improved immediately post-intervention in three (37.5%) studies,[24 33 34] compared with five (62.5%)[25 26 30 37 38] studies using a multimethod approach. With a multimethod approach, long-term improvement was not investigated in any of the studies. However, Szoko *et al*[34] found a significant

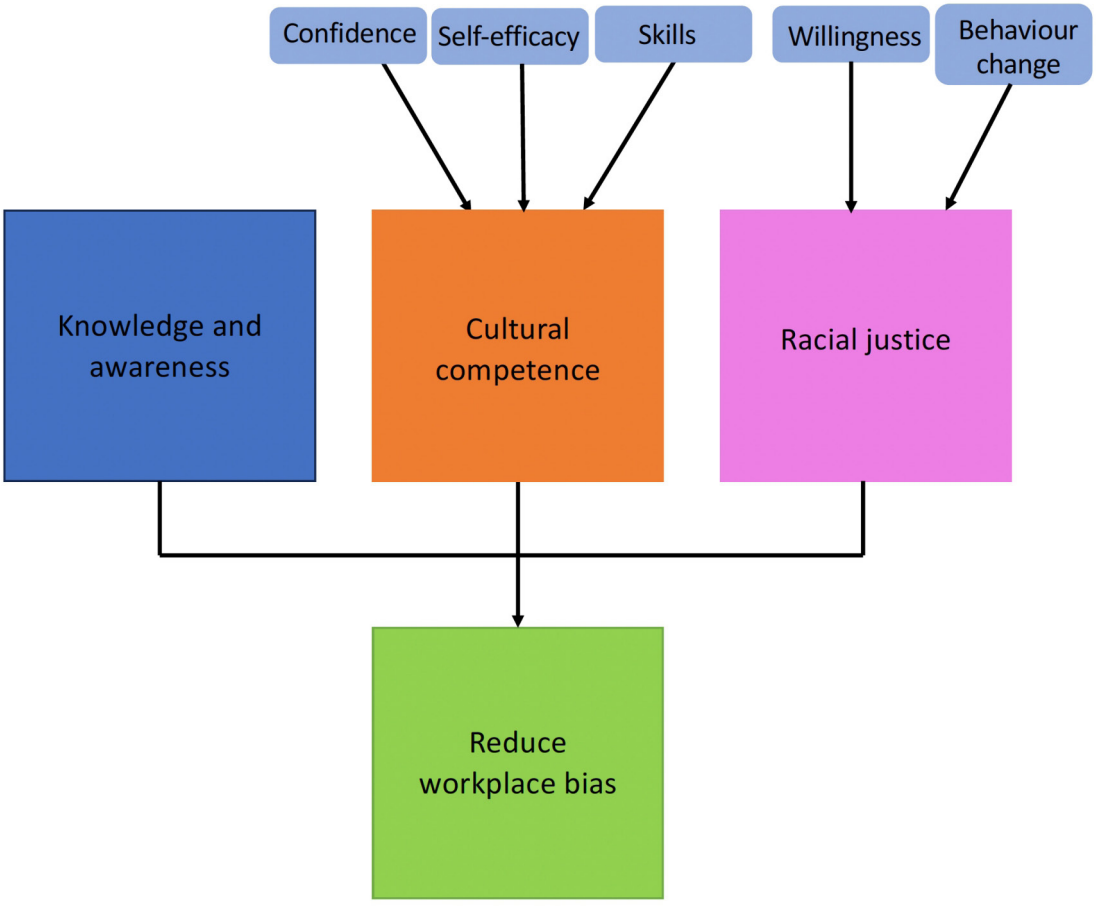

Figure 3 Key themes identified from the literature in keeping with the three categories of EDI interventions. EDI, equality, diversity and inclusion.

improvement in the ARBI (knowledge, awareness, clinical skills and advocacy behaviours) at 3 months following their seven, 1-hour duration didactic sessions.

Overall, two studies reporting the effect of EDI interventions on knowledge and awareness pre-intervention and post-intervention used a theory-based approach.[30 34] This included Kern's six-Step approach theory-based methods including Deming Cycle (PDSA) cycle, critical race theory, transformative learning, minority stress theory, and the structural theory of gender and power, which improved knowledge and awareness all studies[30 34] compared with six (85.7%)[24–26 31–33 38] of the seven studies using a non-theory-based approach. With non-theory-based approaches, a longer-term improvement in knowledge was reported at 3 and 6 months post-intervention.[26 33]

Cultural competence

Five studies reviewed the effect of EDI interventions on cultural competence pre-intervention and post-intervention.[25 28 31 38 39] All these studies used a multimethods approach, with one using a theory-based approach.[28] Four (80%) studies[25 31 38 39] demonstrated an improvement in cultural competence following their multimethod, theory-based intervention. This included an improvement in the validated CKS[25] and CSES.[38] However, the RCT by Lin and Hsu found no improvement in the NCCS.[28] The ethnic background of participants in this study was not reported. The two studies[31 39] assessing outcome using non-validated measures found an improvement in strategies to promote culturally sensitive conversations and personal reflection of other cultures. However, although Filmer and Herbig[31] demonstrated an improvement in personal reflection of other cultures, there were no improvement in outcomes including intercultural teamwork, cross-cultural encounters, behaviour or knowledge.

Skill acquisition, confidence and self-efficacy are also required to obtain cultural competence. Eight studies assessed this outcome pre-intervention and post-intervention, with four[24 33 34 36] using a didactic technique and four[28 37–39] using a multimethod approach. Overall, confidence and self-efficacy improved in six (75.0%) studies.[24 33 34 37–39] Three (75.0%) studies[24 33 34] using a didactic teaching method and three (75.0%) studies[37–40] using a mixed-methods approach found an improvement in skill, confidence and self-efficacy. With regards to theory-based approaches, three (75.0%) studies[34 37 39] led to an improvement in skill, confidence and self-efficacy in comparison to three (75.0%) studies[24 33 38] using a non-theory-based approach. For example, the EDI intervention by Powell *et al*[39] based on Kern's six-Step approach over 10 months led to an improvement in strategies promoting culturally sensitive mentoring conversations. Critical race theory, transformative learning, minority stress theory, and the structural theory of gender and power were used in the EDI intervention by Hill Weller *et al*[37] and significantly improved confidence and self-efficacy through providing tools to address microaggressions and increasing participants' likelihood to take action. However, with non-theory-based approaches, Banerjee *et al*[24] found that there was no improvement in confidence in identifying examples of institutional/structural racism, comfort with talking to peers about race or tools obtained to achieve racial equality. In addition, according to Santoro *et al*,[33] although an improvement in personal, interpersonal and institutional confidence was seen immediately post-intervention, this was not sustained at an interpersonal or institutional level at 6 months.

Racial justice

Racial justice requires a reduction in unconscious bias, a willingness to change and behavioural change at an internal, interpersonal level to lead to institutional changes.

Steed[35] evaluated the impact of their 6-hour EDI intervention on unconscious bias through the use of the validated RAAIT and RAS. No improvement in these scores was found following their non-theory-based, didactic session. This study did not include any healthcare professionals from an ethnic minority background.

Eight studies[26 30 31 33 34 36 37 39] reviewed the effect of EDI interventions on willingness to change and skills gained to promote behavioural change. Six (75.0%)[26 30 33 34 37 39] interventions improved outcomes. Regarding teaching design, a mixed-methods approach was used in five (62.5%) studies.[26 30 31 37 39] This led to an improvement in willingness to change and skills to promote behavioural change in four (80.0%) studies.[26 30 37 39] This improvement was sustained at 3 months in the study by Calardo *et al*,[26] including response to bias and tools to escalate discriminatory behaviour, through the use of three 1-hour workshops with large and small group sessions, video simulation and role play. However, with didactic methods, an improvement was seen in two (66.7%) studies.[33 34] The didactic teaching method used by Santoro *et al*[33] demonstrated that their cultural humility intervention, provided using a single 3-hour didactic method, improved the awareness of the role of racism in healthcare and participants' own bias and privilege. Moreover, there was an improvement in healthcare professionals' willingness to address interactions that perpetuate racism at an individual, interpersonal and institutional level immediately post-intervention. However, this was not sustained in four out of six domains at 6 months.

A theory-based approach was used in five (62.5%) studies.[30 34 36 37 39] This led to an improvement in willingness to change and skills to promote behavioural change in four (80.0%) studies[30 34 37 39] in comparison to two (66.7%) studies[26 33] using a non-theory-based approach. Theory-based approaches, such as the Deming cycle (PDSA), over four, 4-hour group sessions, led to an improvement in willingness to take action in mental health institutions and hospitals. However, this effect was not seen in nursing homes.[30] While Powell *et al*[39] highlighted that their EDI interventions over 10 months based on Kern's six-step approach, provided participants

tools to improve institutional racial injustice through promoting knowledge surrounding the impact of structural racism and encouragement of behavioural change through promoting under-represented trainee doctors and culturally sensitive mentorship conversations. Non-theory-based approaches[26 33] were associated with an improvement in interpersonal change through the escalation of discriminatory behaviour and addressing interactions that perpetuate racism.

Only one study[34] reviewed whether their EDI intervention resulted in true behaviour change, through the use of the validated ARBI, which demonstrated that their didactic, theory-based sessions resulted in a significant improvement in individual advocacy behaviours, however, this did not impact behavioural change at an institutional level.

Reducing bias in the workplace

Gleeson *et al*[36] found no change in the experience of institutional racism that doctors in their study faced following their didactic teaching intervention. This was evaluated through an annual survey performed at three time points (2020, 2022 and 2023). 25% (n=7) of the doctors included were of ethnic minority background. In this study doctors were asked on a scale of 1–6 with 1 indicating 'strongly disagree' and 6, 'strongly agree', whether by that time point, they or individuals they knew had experienced institutional racism. Between 2020 and 2022, participants had a median score of 4.

Qualitative data showed that participants found the interventions an effective learning tool[25] to promote institutional change.[27 38 40] improve self-awareness of prejudice, awareness of the stress ethnic minorities face secondary to racism and its effects on their well-being,[35] improve community and motivate action through behaviour changes.[29 39] With regard to self-awareness, the study by Holm *et al*[27] highlighted that in comparison to their counterparts, healthcare workers from ethnic minority groups consistently endeavoured to make increasing efforts and develop coping strategies to succeed in institutions with structural inequalities. This was also reflected by those in leadership roles, which led to feelings of increasing stress. This improved the understanding and awareness of their colleagues.[27] Planned changes between colleagues were demonstrated by three studies,[32 38 39] that showed that their participants felt encouraged to apply EDI content to encounters with their coworkers to actively work and teach colleagues to avoid bias, be more open to difficult conversations, plan peer activities to be more inclusive and develop into more empathetic and supportive colleagues.

DISCUSSION

Principal findings

EDI interventions may improve knowledge, awareness, clinical skills and a willingness to change behaviour. Interventions were delivered using several methods including didactic, group discussion, game-based learning or a combination of methods. Our findings suggest that a multimethod, theory-based approach may be optimal in improving knowledge and awareness around diversity, cultural competency and racial justice through improving willingness to change and providing tools to encourage a behavioural change. However, there is insufficient evidence to suggest that these interventions reduce the racism that healthcare professionals from an ethnic/racial minoritised minority background face.

Interpretation of the findings

Significant financial resources are allocated throughout the UK to reduce racism in the workplace. The most recognised allocation of recourses is with the implementation of mandatory staff EDI intervention training programmes.[48] NHS annual spending on dedicated EDI roles is approximately £40 millions. This accounts for less than 0.03% of the resource budget in the NHS for 2023/2024.[49]

The NHS Resolution's Practitioner Performance Advice explored the experiences of 11 healthcare professionals from an ethnic minority background. In this qualitative study, participants stressed that the NHS should recognise and tackle systematic discrimination.[50] There are three categories of EDI interventions described in the literature including improving knowledge and awareness around diversity, cultural competence and social/racial injustice, to reduce bias within the workplace.[22] Cultural competence can be defined as the acquisition and maintenance of culture-specific skills.[51] Racial justice can be defined as systematic fair treatment of people of all races, ensuring equitable opportunities and outcomes for everyone.[52] The NHS recommends that mandatory EDI training should encompass five essential principles including valuing diversity, conducting cultural competence, understanding the dynamics of difference, institutionalising cultural knowledge and adapting to diversity. However, it does not detail the optimum way to deliver this training.[53] It has been suggested in the large review by King *et al*[54] (155 922 participants in multiple NHS organisation) that EDI interventions in the NHS may reduce the likelihood of staff experiencing discrimination due to the diversity awareness, knowledge, skills and self-efficacy gained through training. The authors found no direct link between EDI training and individual experience of racism. However, EDI training had the greatest effect on the personal experiences of racism if the organisation included a greater number of staff from an ethnic minority background. This is in keeping with our findings, as the studies by Steed[35] and Gleeson *et al*[36] with a small number of participants from an ethnic minority background; 0% and 25.0%, respectively, did not improve unconscious bias or experiences of racism discrimination. Recent data suggest that the introduction of mandatory EDI training has had minimal effect on the reported rates of racism experienced by healthcare professionals from an ethnic minority background, as indicated by the 2023 Workforce

Race Equality Standard survey, as the rates of reported racism over the past 5 years have risen.[10] It is unclear from the literature why EDI training does not result in reduced racism. Furthermore, there is a lack of clarity regarding the specific measures for mitigating racism.[10] Therefore, it is important that organisations have the tools to design more effective EDI interventions.

Our findings are consistent with other systematic reviews in the literature.[55 56] A recent review assessed the effect of diversity, equality and antiracism training interventions in several workforce settings, including education, healthcare and corporate. The authors found that 61% of the 23 included studies reported a significant improvement in knowledge, awareness and attitudes. In addition, interventions with multiple sessions resulted in improvements in the majority of their reported outcomes.[55] Metinyurt *et al*[56] also performed a systematic review evaluating interventions to address workplace bias within academic institutions and their effect on knowledge, attitudes or behavioural change. Similar to the findings in our study, the authors demonstrated that no research is available highlighting that EDI interventions mitigate workplace bias. Therefore, it remains unclear if increasing knowledge and awareness leads to behavioural change with regard to racism. Both reviews included studies from the USA. However, Metinyurt *et al*[56] highlighted one study that included higher education staff from the University of Exeter, UK.[57] This study found that unconscious bias training improved the motivation and willingness to take action, but again, it did not provide evidence to suggest a behaviour change.[57]

There is an assumption that health interventions that provide information alone can create sustainable behavioural change. Theory-based approaches such as Kern's six-step approach are recommended to expand and improve medical education beyond solely obtaining knowledge, through problem identification, targeted needs assessment, setting goals and objectives, educational strategies, identifying barriers and resources required for implementation and learner evaluation and assessment of the curriculum.[58] The transtheoretical model hypothesises that health behaviour involves six processes of readiness to change, including precontemplation, contemplation, preparation, action, maintenance and termination. In the precontemplation stage, individuals may be uninformed and do not intend to act, while in the contemplation stage, change is intended within the next 6 months. In the preparation change, people intend to take action immediately. For effective change, individuals traverse through the action, maintenance and termination phase, where there is no risk of reverting back to poor habits[59] For at-risk groups, 40% will remain in the precontemplation stage, 40% in contemplation and 20% in preparation.[60] This means that there is a significant number of individuals whose behaviour does not change. Chauhan *et al*[61] showed in their systematic review of behaviour change interventions influencing healthcare professional's practice, that multifaceted, continuous medical education, including components such as interactive educational models, audit and feedback, computer-based learning and didactic teaching were more effective than single interventions. The findings from our review are in keeping with this as they suggest that a multimethod, but also theory-based approach may improve knowledge and racial justice through improving willingness to change and providing tools to encourage a behavioural change in 80% of studies addressing this outcome. This would move individuals into the contemplation and preparation stage of the transtheoretical model. However, the EDI intervention based on Kern's six-step approach by Szoko *et al*[34] demonstrated that although an improvement in individual advocacy behaviours was seen, for example, "interrupting racist conversations and jokes when I hear my friends talking that way", this did not impact advocacy at an institutional level; "I volunteer with anti-racist or racial justice organizations". Therefore, it cannot be deduced if EDI interventions improve systematic racial justice, which is imperative to reduce overall racism in the workplace. Specific efforts need to be made, which focus on this and require cross-sector collaboration and system-wide change.

But it is important change is sustained over time and it is important to note that only four studies reviewed effectiveness at 3 months,[25 26] 6 months[33] and 2 years.[36] A multimethod approach was used in two of these studies over three[26] and six[25] sessions. While the remaining 2 studies used a didactic method over 7[34] and 11[36] sessions. However, the study by Santoro *et al*,[33] which used a single 3-hour didactic EDI intervention, demonstrated that immediately post-intervention, willingness to address interactions that perpetuate racism at an individual, interpersonal and institutional level improved, but only a change at an interpersonal level was sustained at 6 months. These individuals would by definition be in the preparation stage as they have committed to correct their behaviour. Health education interventions can be tailored to an individual's stage of change with stage-matched interventions, which are based on the transtheoretical model and have been shown to move significantly more individuals into an action stage in comparison to non-stage matched.[62 63] The stage of behaviour change regarding willingness to make a change should be elicited at assessment and intervention elements should include education, tailored feedback, self-monitoring, goal-setting, a personalised programme service, counselling and community among other individuals.[62] Santoro *et al*[33] included an element of self-monitoring and goal setting with the creation of a document for participants to place on their workstations as a reminder to be culturally humble when interacting with other members of staff and 90% found this useful.

Multilevel EDI interventions have also been recommended to reduce ethnic health inequalities.[64] This includes interventions targeted at an interpersonal level and institutional level. A systematic change is needed at all levels. From an institutional perspective, this can be

addressed through the organisation, community and policy.[64] However, maintaining financial sustainability is a key performance indicator for the NHS. Therefore, it is essential interventions are not of significant cost. However, no study included in our review described the cost of implementing their training. The 2019 Tackling Inequalities and Discrimination Experiences in Health Services study included 931 healthcare staff from 34 NHS Trusts and highlighted that those individuals who experienced discrimination in the workplace had a twofold increase in the odds of taking a minimum of 2 weeks of sick leave absence and a 63% reduction in job satisfaction. This remained significant after adjusting for chronic illness or disability.[11] The NHS relies on healthcare professionals from overseas,[65] therefore, addressing racism within the workplace would yield significant benefits to improve staff retention, reduce sickness and overall improve the provision of care to patients. Improving workforce experience is estimated to reduce costs to the NHS by £2.281 billion.[66] The NHS EDI improvement plan has prioritised six high-impact action plans to address this including, specific and measurable EDI objectives for NHS leaders, targeted fair and inclusive recruitment processes, development programmes, positive working environments and improvement plans to eliminate pay gaps and health inequalities within the workforce.

Although the literature regarding the most effective method to reduce inequalities within the health workforce is heterogeneous, medical colleges in the UK have developed their own racial diversity strategies. For example, regarding medical curriculum, the Royal College of Obstetricians and Gynaecologists (RCOG) have used a multimethod, theory-based approach to address race inequality within the specialty. This includes the introduction of a segment on unconscious bias for examiners, online mandatory unconscious bias training and a differential attainment toolkit with three modules for learners, educationalists and organisations is in development. The RCOG has implemented other strategies to improve the well-being of healthcare professionals from an ethnic minority background, such as increasing awareness, mentoring, professional support, education materials and improving their psychological safety (online supplemental table 5). The psychological safety of staff is essential in high-risk environments such as obstetrics and gynaecology. Hunt *et al*[67] highlighted in their review that to enhance psychological safety for staff in mental health services, interventions need to be implemented at an individual, team and organisational level. In addition, interventions need to be multifaceted to promote behavioural change. Interventions described included Schwartz rounds, skills workshops, simulation and role play, video presentations and case studies. Therefore, to truly effect change among healthcare organisations, targeted, theory-based, multimethod interventions should be used to promote effective and persistent behavioural change.

Strengths and limitations

The main strength of this study is that, to our knowledge, this is the first systematic review evaluating the effect of EDI interventions on healthcare professionals within healthcare organisations. We conducted a comprehensive search with no date restrictions. Our primary outcome was to evaluate the impact of EDI interventions on the incidence of racism reported by healthcare workers. Although an improvement in willingness to change and the provision of staff with tools to promote behavioural change was found, this is not a surrogate for institutional change. We found one study[36] that demonstrated that the incidence of racism experienced by healthcare professionals following their EDI intervention did not change. However, only 26% (n=7) of individuals in that study were from an ethnic minority background. Therefore, it is unclear whether these findings are generalisable. It was not unexpected that most studies in our review did not report the incidence of racism, as we appreciate that this outcome is inherently difficult to measure objectively. To address this, a core outcome set for future studies should be developed. We do acknowledge that there are limitations. First, the available studies had a high risk of bias and low study quality, meaning their findings may not indeed be due to the interventions provided. Moreover, as no UK studies have been reported in the literature, our findings may not apply to UK healthcare organisations. It is also important to note that the evidence from the studies was conflicting, with an improvement not being reflected in all studies, outcome subsections or at long-term follow-up. Due to the small number of studies, it was difficult to make robust comparisons with regard to optimum intervention design or delivery. Moreover, meta-analyses could not be undertaken due to the heterogeneity of interventions, settings, study design and outcome measures. This was anticipated as there is no validated tool in the literature available to evaluate outcomes following EDI interventions specifically.

CONCLUSION

This systematic review has shown that EDI interventions using a multimethod, theory-based approach may improve healthcare workers' knowledge and awareness of racial inequalities. Although a willingness to change may occur and behavioural change is promoted, there is insufficient evidence from this review to suggest that this reduces the experience of racism, as this was an outcome in one study alone, which found no improvement following their EDI intervention. There is a clear gap in the literature, and core outcome sets need to be developed and used in high-quality studies in the UK to design effective EDI interventions, which could result in a reduction in the racism experienced by healthcare workers in the NHS. In addition, a sustained, unified and cross-sectional approach with healthcare professionals who have lived through the experience of racism is suggested to influence change.

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